TRI-TRONICS®

Smart Sensing Solutions Since 1954

RETRO◊SMART®

Retroreflective Clear Object Sensor

RETRO◇SMART®

High Performance Clear Object Sensor

Many of today's industrial control functions require a sensor that can provide dependable detection of position or presence of transparent containers. The RetroSmart™ will provide a single, non-chattering output for each transparent container that passes by, independent of size, shape, empty, or full.

Imagine: just point the RetroSmart™ sensor's red, narrow light beam at the reflector and push the AUTOSET button one time. Now sit back and watch the sensor flawlessly detect any size PET bottle filled with water, with no need to worry about burn-through or double signals.

When the efficiency of an entire production line depends on the performance of a photoelectric sensor, the RetroSmart™ is the smart choice.

Features
- 100μs response time
- Polarized retroreflective - from a few inches up to 8 feet
- Remote AUTOSET
- Light State Tracking
- Button lockout
- Cable or quick disconnect versions
- Immune to most ambient light, including strobes

Benefits
- Reliable and repeatable detection of the clearest and shiniest of materials from leading to trailing edge
- No false triggers
- Easy Remote AUTOSET for hard to reach areas
- Through-hole or bracket mounting for easy installation
- Robust design to improve up-time
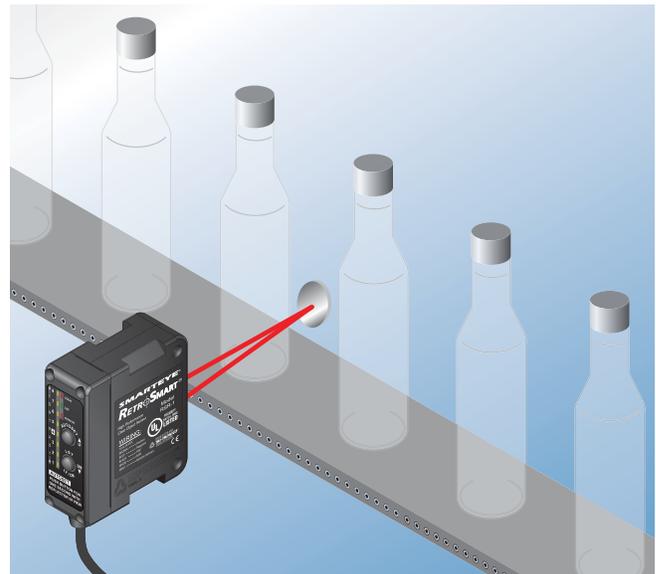
Applications

RETRO◆SMART®

Trigger Sensor for Code Marking

- Accurate from leading edge to trailing edge.
- No false triggers
- Remove print distortion errors
- Easy setup
- Available with glass lens for ink-jet applications
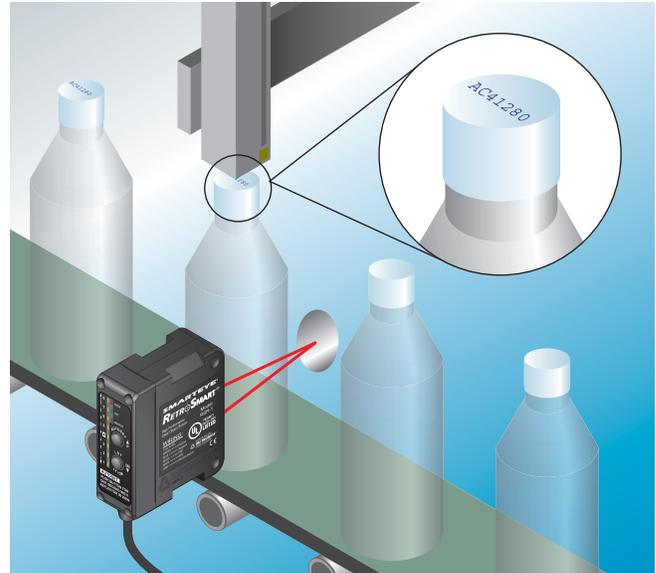
Detection of Transparent Containers

- Full or empty, no false triggers
- Solid, repeatable performance regardless of the shape, shininess, or transparency
- Works on glass, plastic, acrylic, or clear Mylar films

Clear Detection Applications

- Clear bottles, vials, food containers (clamshell boxes), syringes, liquids, etc.
- Clear web break/web splice
- Inspection systems for glass bottles, PET bottles, food products, etc.
- No false signals sensing shiny bags, foil webs, or cans

RETRO◆SMART®

Features

RETRO SMART®
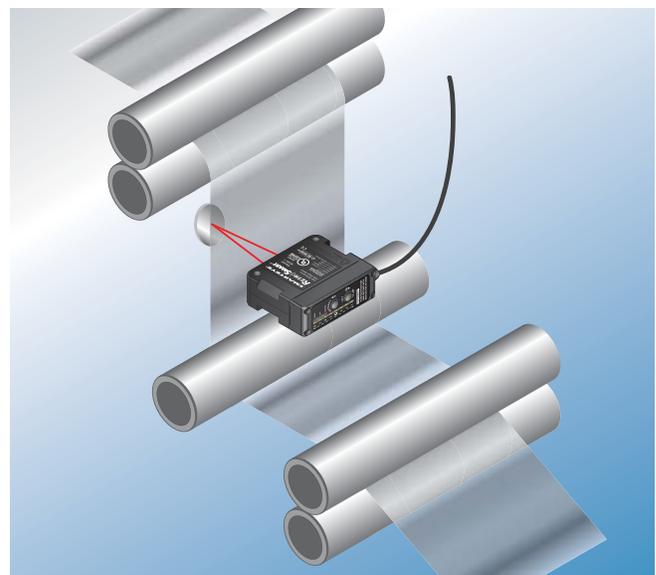
AGS

AGS (Automatic Gain Select) provides automatic digital selection of amplifier gain based upon the sensing requirements.

AUTOSET ADJUSTMENT

The AUTOSET adjustment routine only requires the push of one button, one time. Even in a dynamic operating condition, with ongoing input events, all you have to do is push the button for a perfect setting.

EDR®

The digitally controlled EDR® (Enhanced Dynamic Range) circuit prevents dark state saturation and expands the operating range without reducing amplifier gain.

REMOTE AUTOSET

To remotely AUTOSET the sensor, apply a momentary contact closure from the AUTOSET input wire to negative as shown in the wiring diagram.

8 LED DUAL FUNCTION INDICATOR

Contrast indicator – provides at-a-glance performance data.

LOCK

When Lock is enabled the sensor becomes tamperproof.
Note: The remote AUTOSET is not affected by the Lock.

LST

LST (Light State Tracking) automatically adjusts the sensor up to maintain a perfect setting. When diminishing conditions occur, as in a dusty environment or slight misalignment issues, the sensor will bump up the gain to compensate for the reduced performance.
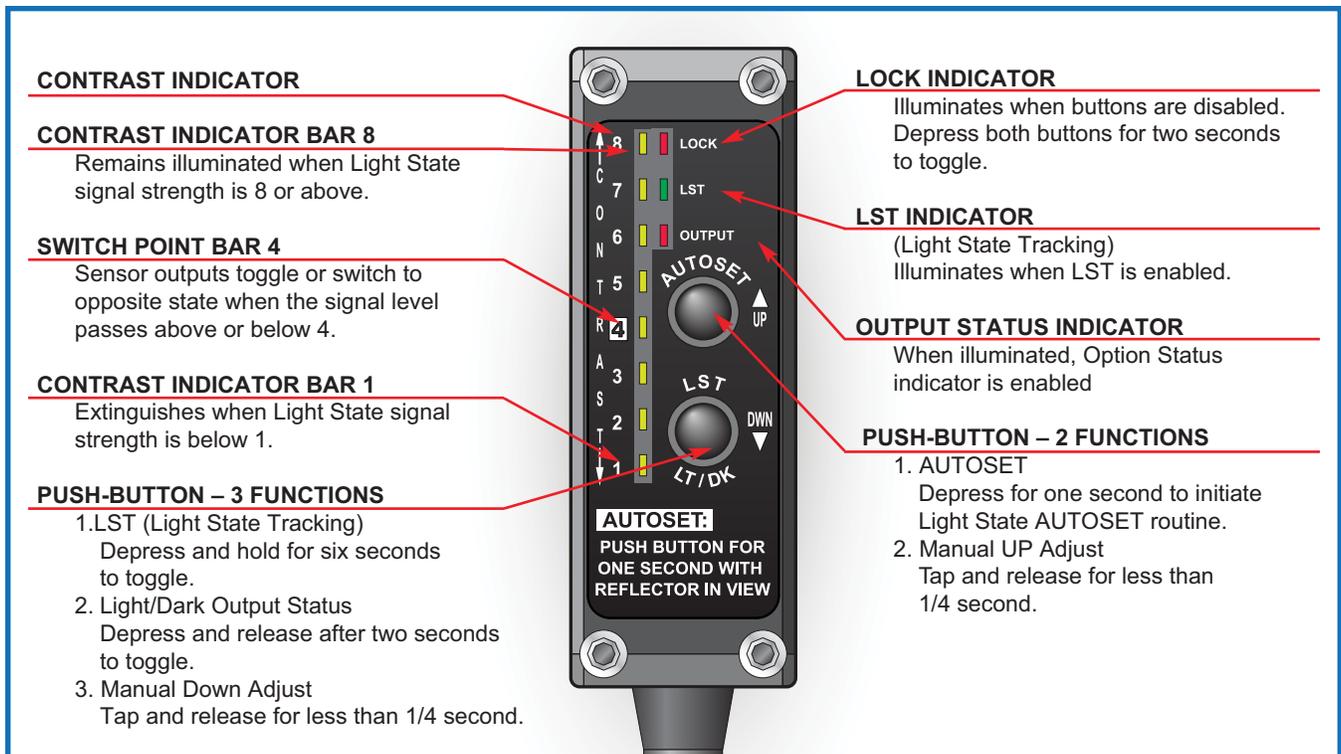
HIGH SPEED

100 microsecond response time for high-speed bottling, filling, or printing applications.

CONNECTIONS

Built-in 12mm connector or 6ft cable.

MOUNTING OPTIONS

Through-hole, or bracket mount.

CONTRAST INDICATOR

CONTRAST INDICATOR BAR 8
Remains illuminated when Light State signal strength is 8 or above.

SWITCH POINT BAR 4
Sensor outputs toggle or switch to opposite state when the signal level passes above or below 4.

CONTRAST INDICATOR BAR 1
Extinguishes when Light State signal strength is below 1.

PUSH-BUTTON – 3 FUNCTIONS
1. LST (Light State Tracking)
   Depress and hold for six seconds to toggle.
2. Light/Dark Output Status
   Depress and release after two seconds to toggle.
3. Manual Down Adjust
   Tap and release for less than 1/4 second.

LOCK INDICATOR
Illuminates when buttons are disabled. Depress both buttons for two seconds to toggle.

LST INDICATOR
(Light State Tracking)
Illuminates when LST is enabled.

OUTPUT STATUS INDICATOR
When illuminated, Option Status indicator is enabled

PUSH-BUTTON – 2 FUNCTIONS
1. AUTOSET
   Depress for one second to initiate Light State AUTOSET routine.
2. Manual UP Adjust
   Tap and release for less than 1/4 second.

AUTOSET:
PUSH BUTTON FOR ONE SECOND WITH REFLECTOR IN VIEW

How to Specify

RETRO◆**S**MART®

1. Select Sensor:
SMARTEYE® RETROSMART®

2. Select Connection:
Blank = 6ft (1.8m)
C = 6in (152mm) pigtail with 5-pin connector *(accessory cable required)*

NOTE: All models include AR6151 high performance prismatic reflector.

3. 1 = Standard RetroSmart

4. Select lens material:
Blank = Acrylic
G = Chemical resistant glass window

Example: RSR C -1 G

SMARTEYE®
RETROSMART®

C = 5-Pin Pigtail Connector

Standard RetroSmart

Lens Material
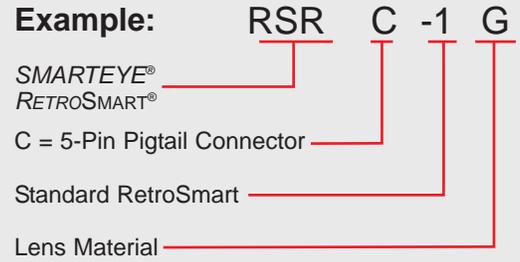
Hardware & Accessories

Cables
5-Wire Shielded MicroCable, M12

GSEC-6
6ft (1.8m) cable

GSEC-15
15ft (4.6m) cable

GSEC-25
25ft (7.62m) cable

GRSEC-6
6ft (1.8m) right angle

GRSEC-15
15ft (4.6m) right angle

GRSEC-25
25ft (7.6m) right angle

GPSEC-15
15ft (4.6m) cable , non-metallic shell

5-Wire Unshielded Cable, M12, Low Cost

GSEC-2MU
6.5ft (2.0m) cable

GSEC-5MU
16.4ft (5.0m) cable

5-Wire Extension Cable, M12

GX-25
25ft (7.6m) extension cable

Reflectors
Screw Mount

AR4060
1.6in x 2.36in (40.5 x 60mm)

AR6151
2.4in x 2.0in (61 x 51mm)

AR6151G
(Chemical resistant glass cover)
2.4in x 2.0in (61 x 51mm)

Glue Mount

AR46
1.8in diam. (46mm diam.)

Economical Adhesive Backing

PRD1
1in x .03in (25mm x .75mm)

PRD2
2in x .03in (50mm x .75mm)

Note: See page 5-5 in the Accessories section for a full listing of reflectors.

Mounting Bracket

SEB-4
Stainless Steel Mounting Bracket

Specifications

R̲ETRO̲S̲MART®

SUPPLY VOLTAGE
- 10 to 30VDC
- Polarity protected

CURRENT REQUIREMENTS
- 50mA (exclusive of load)

OUTPUT TRANSISTORS
- (1) NPN and (1) PNP output transistor:
  NPN: Sink up to 150mA
  PNP: Source up to 150mA
- Continuous short-circuit protection
- Outputs protected from pulsing during power up.

REMOTE AUTOSET INPUT
- Opto-isolated momentary sinking input (10mA)

RESPONSE TIME
- Light State = **100** microseconds
- Dark State = **100** microseconds

LED LIGHT SOURCE
- Red 660 nm
- Pulse modulated

PUSH-BUTTON CONTROL
- One-Touch AUTOSET push-button setup
- Tweak adjustments with UP or DOWN buttons
- LST (Light State Tracking) Enable/Disable
- Light ON/Dark ON selection

RANGE
- Optimum from 6in to 8ft (15.24cm to 2.4m) distance to the AR6151 reflector

HYSTERESIS
- Two bars as displayed on the contrast indicator.
  Light State Switch = 5
  Dark State Switch = 3

LIGHT IMMUNITY
- Responds to sensor's pulse-modulated light source, resulting in high immunity to most ambient light, including high intensity strobes.

DIAGNOSTIC INDICATORS
- Contrast indicator - display scaled reading of sensor's response to contrasting light levels (light vs. dark) on an 8- bar LED display.
- Red LED indicator - LOCK
- Green LED indicator - LST (Light State Tracking)
- Red LED Indicator - OUTPUT

NOTE: If Output LED flashes, a short circuit condition exists.

AMBIENT TEMPERATURE
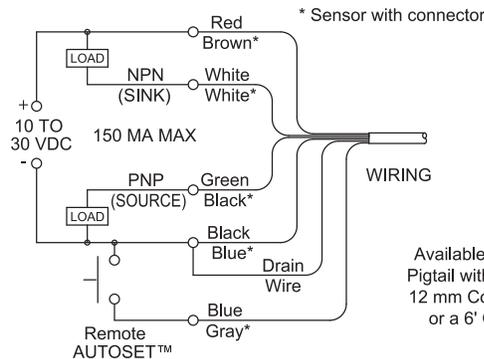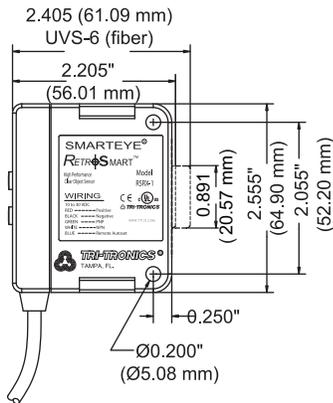- -40°C to 70°C (-40°F to 158°F)

RUGGED CONSTRUCTION
- Chemical resistant, high-impact polycarbonate housing
- Waterproof ratings: NEMA 4, IP66

RoHS Compliant
Product subject to change without notice

Connections and Dimensions

SMARTEYE® RETROSMART®

2.405 (61.09 mm)
UVS-6 (fiber)

2.205"
(56.01 mm)

0.891
(20.57 mm)

2.555"
(64.90 mm)

2.055"
(52.20 mm)

0.250"

Ø0.200"
(Ø5.08 mm)

* Sensor with connector

Red
Brown*

LOAD

NPN
(SINK)

White
White*

+
10 TO
30 VDC
-

150 MA MAX

PNP
(SOURCE)

Green
Black*

LOAD

Black
Blue*   Drain
              Wire

Remote
AUTOSET™

Blue
Gray*

WIRING

Available with 6"
Pigtail with a 5-pin
12 mm Connector
or a 6' Cable

AR6151 High Performance
Reflector Included

2.01"
(51.0 mm)

1.56"
(39.6 mm)

0.78"
(19.8 mm)

0.139
(3.5 mm)

0.17"
(4.3 mm)

Reflective
Surface

0.21" (5.4 mm)

2.40" (61.0 mm)

0.39" (9.8 mm)

0.32" (8.1 mm)

0.90"
(22.9 mm)

15°

0.26"
(6.6 mm)

2.06" (52.2 mm)

3.95" (100.4 mm)

0.63"
(15.9 mm)

1.00"
(25.4 mm)

1.00"
(25.4 mm)

SEB-4 Mounting Bracket
with Hardware